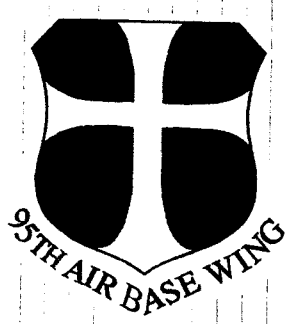
95th Air Base Wing
Civil Engineer Directorate
Environmental Management Division
Edwards Air Force Base, California

Environmental Restoration Program



QUARTERLY STRATEGY AND STATUS REPORT

July through September 2005

FINAL

December 2005

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LIST OF ABBREVIATIONS AND ACRONYMS

95 ABW/CEV	95th Air Base Wing, Civil Engineer Directorate, Environmental Management Division
95 ABW/CEVR	95th Air Base Wing, Civil Engineer Directorate, Environmental Management Division, Restoration Branch
ABM	Aberdeen Bombing Mission
AF	Air Force
AFB	Air Force Base
AFCEE	Air Force Center for Environmental Excellence
AFHQ	Air Force Headquarters
AFMC	Air Force Materiel Command
AFRL	Air Force Research Laboratory
AOC	Area of Concern
APU	auxiliary power unit
AS	air sparging
BEAL	Base Environmental Analytical Laboratory
Blvd	Boulevard
Cal/EPA	California Environmental Protection Agency
CAMU	Corrective Action Management Unit
CCl_4	carbon tetrachloride
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
ComRel	Community Relations
CWM	Chemical Warfare Materiel
DD	Decision Document
DES	dual extraction system
DEW	dual extraction well
DOD	Department of Defense
DTSC	Department of Toxic Substances Control
ELCD	electrolytic conductivity detector
EOD	Explosive Ordnance Disposal
EOS	edible oil substrate
EPA	Environmental Protection Agency

LIST OF ABBREVIATIONS AND ACRONYMS (Continued)

ERA	Ecological Risk Assessment
ERP	Environmental Restoration Program
FBZ	fractured bedrock zone
FFA	Federal Facilities Agreement
FOIA	Freedom of Information Act
FPM	FPM Group, Ltd.
FPRS	Free-Product Recovery System
FS	Feasibility Study
FY	fiscal year
GAC	Granular Activated Carbon
GC	gas chromatograph
GET/IE	groundwater extraction and treatment/ion exchange
GETS	groundwater extraction and treatment system
GIS	Geographic Information System
GPS	global positioning system
HHRA	Human Health Risk Assessment
HRC	Hydrogen release compound
IC	Ion Chromatograph
IRA	interim remedial action
IRA/TS	interim remedial action/treatability study
ISCO	*in situ* chemical oxidation
ITIR	Informal Technical Information Report
JP	jet propulsion fuel
KCEHSD	Kern County Environmental Health Services Department
LIMS	Laboratory Information Management System
LTM	long-term monitoring or management
LUC	land use controls
MCL	maximum contaminant levels
MFRU	mobile free-recovery unit
MMRP	Military Munitions Response Program
MNA	monitored natural attenuation

LIST OF ABBREVIATIONS AND ACRONYMS (Continued)

MS	mass spectrometer
NASA	National Aeronautics and Space Administration
NDMA	N-nitrosodimethylamine
NEBA	Net Environmental Benefit Analysis
NFA	no further action
NFI	no further investigation
NRD	National Resources Defense Council
NRI	natural resource injury
O&M	operations and maintenance
OB/OD	open burn/open detonation
OU	operable unit
PAH	Polycyclic aromatic hydrocarbons
PB	precision bombing
PCB	polychlorinated biphenyls
PCE	tetrachloroethene (perchloroethene)
PCO	post-closeout
PERA	Predictive Ecological Risk Assessments
PID	photo ionization detector
POL	petroleum, oil, and lubricants
PP	Proposed Plan
PVC	Polyvinyl Chloride
QA	quality assurance
QC	quality control
RA	remedial actions
RAB	Restoration Advisory Board
RAO	Remedial Action Objectives
RAP	Remedial Action Plan
RC	Response Complete
RI	remedial investigation
RIPS	Remedial Process Optimization Inventory and Prioritization Software
RISSR	Remedial Investigation Site Summary Report

LIST OF ABBREVIATIONS AND ACRONYMS (Concluded)

ROD	Record of Decision
RPM	remedial project manager
RPO	remedial process optimization
RTS	Report to Stakeholders
RWQCB	Regional Water Quality Control Board
SERA	Scoping Ecological Risk Assessment
SI	site investigation
SSR	Site Summary Report
SVE	soil vapor extraction
TCE	trichloroethene
TI/CZ	technical impracticability waiver/containment zone
TS	Treatability Study
TSWP	Treatability Study Work Plan
URL	Uniform Resource Locator
U.S. EPA	United States Environmental Protection Agency
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
UST	underground storage tank
VOC	volatile organic compound

1.0 INTRODUCTION

This status report includes summaries of activities performed at Edwards Air Force Base (Edwards AFB) under the Environmental Restoration Program (ERP) between 1 July and 31 September 2005. This report describes the significant activities in each operable unit (OU) and summarizes the status of each site or area of concern (AOC). The report also presents programmatic and public involvement activities that function in a support capacity to the ERP that are not associated with any specific OU.

The OU sections summarize activities during the reporting period with a Road to Record of Decision (ROD) section that summarizes the strategy for the OU. The General Activity subsection describes activities that are planned or have occurred over the entire OU or are not specific to any individual site or AOC. The Site and AOC Activity subsection describes the current activities, as well as activities planned for the following quarter, at each active site or AOC.

2.0 NON-OU-SPECIFIC PROGRAMS

2.1 Freedom of Information Act Request

Project Manager: Kathryn Curtis
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As a result of two Freedom of Information Act (FOIA) requests and an associated lawsuit, ERP began conducting an internal search for all records pertaining to perchlorate at Edwards AFB. In March 2003, the National Resources Defense Council (NRDC) filed a FOIA request with the Department of Defense (DOD) for documents pertaining to perchlorate. At the time, DOD did not require the Air Force to conduct a separate search and was subsequently sued by NRDC. On 25 May 2005, the United States District Court for the Central Circuit of California ordered DOD to conduct a search within the Air Force. Additionally, in April 2005, the NRDC filed a separate FOIA request with the Air Force requesting similar documents. The records being searched include all public documents, internal e-mail, and technical documents associated with perchlorate. The FOIA request is being coordinated through the Edwards AFB FOIA manager, and document submission is ongoing.

2.2 Geographic Information System (GIS)

Project Manager: Stephen Watts
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Custom figures were created for the fiscal year (FY) 2006 Narratives. Custom maps were created showing control points around six wells to be resurveyed and wells to be repaired and/or abandoned in OU1, proposed OU4 well abandonments, well locations to be used by field crew for OU9 long-term monitoring (LTM) groundwater measurements, and Oilton imagery in relation to suspected chemical warfare materiel (CWM) trenches at Site 442 Area 2. Custom maps were created for the Military Munitions Response Program (MMRP) and open burn/open detonation (OB/OD) LTM Report. Presentation slides were created for a briefing to Col Jeter

and for the 95th Air Base Wing Standup. Global Positioning System (GPS) training was provided to FPM Group, Ltd. (FPM) personnel on using the GeoXT GPS receiver and postprocessing of data gathered. The GPS postprocessing support was provided for data gathered by Earth Tech at ERP sites. Long-term monitoring mapping support was provided to create Potentiometric Water Level Contour Maps for a report based on the January 2005 sampling round at the OB/OD site and for a report on the OU4 July 2005 sampling round. Locations of the 13 Sanitation District 14 monitoring wells were added to the WELL LUC/WebMap Layer. The ERP Sites 431/432 boundaries were modified in the Enterprise GIS layer. Electronic-sized maps were printed of the revised plume footprint maps submitted by Earth Tech. Spatial queries were run to generate a list of ERP Wells at NASA. Figures for the OU9 LTM report were revised and printed.

2.3 Ecological Risk Assessment (ERA)

Project Manager: Stephen Watts
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The Air Force accepted U.S. Geological Survey (USGS) responses to regulatory comments on the draft *OU10 Pre-Scoping Ecological Risk Assessment.* The USGS submitted and distributed the final document. The USGS completed, printed, and distributed the final *OU5 Pre-Scoping Ecological Risk Assessment.* The USGS responded to Air Force comments on the electronic preliminary draft Scoping Ecological Risk Assessment for OUs 5 and 10 and prepared the document for printing.

Tetra Tech will be initiating the preliminary steps of the Predictive Ecological Risk Assessment (PERA) for OU5/10, which will be conducted over the next several months. A technical working meeting and site visit for OU5/10 by the ecological risk assessment team is currently being planned for this fall. Tetra Tech completed revisions to the final *OU7 PERA* and the document was submitted on 12 January 2005. A few minor page replacements were distributed during April 2005. The OU7 PERA found ecological risk is associated with Sites 3, 269, 272, 280, 293, 294, and 339. Data gaps were identified for Sites 272, 293, 294, and 339. An addendum to the PERA will be prepared when soil and clay pigeon analytical data are available from these sites. The preliminary draft addendum for the *OU 7 PERA* is expected to be ready by 30 June 2006. Responses to the regulatory comments on the draft *Predictive Ecological Risk Assessment (PERA) for Sites 25, 61, 116, 257, and 301 at Operable Unit 8* are presently in Edwards AFB review; Tetra Tech plans to submit the final PERA for OU8 within the next 2 months upon finalization of the responses to regulatory comments.

2.4 Human Health Risk Assessment (HHRA)

Project Manager: Stephen Watts
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The *Field Sampling Plan for Sites 257 and 300, OU8* was submitted to 95th Air Base Wing, Civil Engineer Directorate, Environmental Management Division, Restoration Branch for review. Comments were received and Earth Tech began preparing the draft Field Sampling Plan for regulatory review in October 2005.

95 ABW/CEVR submitted review comments on the preliminary draft *OU10 Human Health Risk Assessment (HHRA) Report*. Following resolution of comments, the draft *OU10 HHRA Report* was prepared and submitted for regulatory review on 8 August 2005. On 30 August, U.S. EPA provided review comments on the draft *OU10 HHRA Report*. Both the OU5 risk assessment calculations and preparation of the final OU10 HHRA report are on hold while administrative issues are being resolved. These issues include combining OU5 and OU10 into a single OU designated OU5/10, arranging continuing funding for completion of the HHRA due to unforeseen data gap sampling, and additional risk assessment.

2.5 Natural Resource Injury Assessment

Project Manager: Stephen Watts
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Under this project, CH2M HILL is supporting Edwards AFB through JT3/CH2M HILL by performing a Natural Resource Injury (NRI) Assessment Report for OU 1 sites. The NRI Assessment Report includes brief descriptions of the activities performed from July through September 2005.

During this period, CH2M HILL responded to Air Force comments on the draft Remedial Investigation/Feasibility Study (RI/FS) Net Environmental Benefit Analysis (NEBA) for OU1 and submitted the final *RI/FS NEBA for OU1* on 5 September 2005.

CH2M HILL was awarded a contract to conduct NEBAs for OUs 4, 7, and 9, as well as update the OU1 NEBA to coincide with changes in the OU1 Feasibility Study. Work on the OU1 NEBA is expected to start in October 2005.

2.6 Remedial Process Optimization (RPO)

Project Manager: David Porter
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Remedial Process Optimization is continuing at Edwards AFB. All operating systems are evaluated annually when their monitoring reports are submitted. Most of the significant changes have been made; the effort is now focused on out-year planning and evaluating effects of optimizing treatment systems, combining systems and their potential impacts on post ROD activities. We are bringing the RPO focus into the feasibility studies and looking at long-term impacts with respect to programming and efficiencies. Alternative treatment technologies are being emphasized. The RPO effort is also being coordinated with the upcoming 5-year review cycles to combine efficiencies of the two programs.

Additionally, the new Remedial Process Optimization Inventory and Prioritization Software (RIPS) database being implemented by Air Force Materiel Command (AFMC) has been populated and Edwards AFB is at the leading edge of implementing this database. As a result of a previous RPO, Site 66 has now been shut down and the site has been converted to monitored natural attenuation (MNA).

2.7 Base Environmental Analytical Laboratory (BEAL)

Project Manager: Robert Shirley
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During this reporting period, the laboratory performed a total of 68 analyses on 39 samples from 9 batches. Analytical services included the support of OU9 well monitoring; hazardous waste characterization in support of Bioenvironmental Engineering, Civil Engineering, and the Hazardous Waste Support Facility; and Air Force Research Laboratory (AFRL) wastewater characterization.

The following Quality Control (QC) program tasks were accomplished during this reporting period:

a. Tuned and calibrated the Gas Chromatograph with Mass Spectrometer (GC/MS) used for the EPA SW846 Method 8260B analysis.

b. Tuned and calibrated the Gas Chromatograph with Photo Ionization and Electrolytic Conductivity Detectors (GC/PID/ELCD) used for the EPA SW846 Method 8021 analysis.

c. Prepared a new calibration standard for the EPA SW846 Method 6020 analysis.

The following Quality Assurance (QA) program tasks were accomplished during this reporting period:

a. Performed data validation of OU9 samples for the following methods: volatile organic compounds (VOCs) by EPA SW846 Method 8260B; 1,4-Dioxane by EPA 8270C (Single Ion Monitoring); perchlorate by EPA Method 314.0; and N-Nitrosodimethlyamine (NDMA) by GC/MS.

Initial setup began of the new Varian 4000 GC/MS that will be used to analyze ERP samples for VOCs by EPA SW846 Method 8260B.

The DIONEX Ion Chromatograph (IC) was moved from Room 104 to 107. The older IC was placed into crates and moved into the storage area behind Building 4288. Moving this equipment was necessary to create bench space for the new Varian GC/MS. This IC is being kept until a decision is made regarding future anion analysis needs.

An ethernet switch was installed in Room 108 to support the impending installation of the LABWORKS Laboratory Information Management System (LIMS). This included installing ethernet cables to all the hardware that will be supported by the LIMS servers. Seven new Dell computers were received from Perkin Elmer to replace four older analytical equipment computers and to add three new workstations for a LIMS. JT3/UNISYS has done an outstanding job in configuring the seven new workstations and two servers, acquiring and installing network cards and printer servers, and installing software. The LIMS project is on schedule and estimated to be operational in early January 2006.

The BEAL staff coordinated with Agilent Technologies in upgrading five of the analytical instruments. Agilent completely overhauled both Agilent 5973 Mass Spectrometers by replacing internal hardware and upgrading software, replaced the Hewlett Packard 4500 interface card and

upgraded the software, and reconfigured the two 6890 GCs to work from different computers by installing CHEMSTATION software onto a new workstation. All of these upgrades are required for the analytical equipment computers to correctly communicate with the soon-to-be-installed LIMS.

A comprehensive equipment list was prepared of all hardware, software, manuals and accessories received from Perkin Elmer to support the LIMS implementation. This data was provided to FPM to assist them in their transfer of property to the government.

Upgrade of analytical equipment and the implementation of a LIMS will periodically impact the BEAL's ability to timely analyze samples during the first quarter of FY 2006. During this quarter, the BEAL staff must recalibrate much of its equipment, prepare new analytical methods, update BEAL standard operating procedures, and upload the initial data required by the LIMS. A greater percentage than normal of samples may require offsite analysis during this period. JT3 will continue to keep Environmental Management aware of BEAL impacts and project status.

A proposal request was prepared for a BEAL analytical support subcontract and disseminated to four labs. Three labs have responded and BEAL staff have prepared a table to compare cost and service. The subcontract lab will be selected on 3 October 2005 by the BEAL Manager and Senior Project Chemist.

The BEAL staff continued to support the JT3/CH2M HILL Information Services section in the completion of the BEAL marketing task. Most of the effort during this period focused on the design and preparation of BEAL equipment signs. All BEAL signs have been prepared and installed at the BEAL. In addition, BEAL staff provided input into the brochure.

2.8 Community Relations

Project Manager: Robert Wood
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Events

The Community Relations (ComRel) staff held several planning meetings for the October 2005 Air Show. The staff requested and received booth space for the Air Show in Hangar 1414. Environmental Management will be in the northwest corner of the hangar. Design of the booth layout was begun and coordination with the vendor producing the shirts continued.

Publications

Updating of the ERP pages on public web site was begun.

JT3/CH2M HILL formatted a fact sheet written by TYBRIN on whey injection at Site 19. It is under review.

Signage was completed on the BEAL marketing task. Other tasks were extended to 30 November 2005 because of the ComRel and BEAL workloads.

Personnel began collection of ComRel information and staff e-mails on the Perchlorate FOIA request.

***Report to Stakeholders* (RTS)**

The September, October, and November 2005 issues of the *Report to Stakeholders* were submitted to the Air Force for review. The August and September issues were coordinated for review through the Installation Restoration Program Subcommittee members and the Remedial Project Managers. The July, August, and September issues were sent to the printer. The July issue was distributed in the *Desert Wings*. Distribution in the *Desert Wings* of the August and September issues was delayed until October 2005 for several reasons beyond the control of ComRel. The June, July, and August web versions were published to the public web page. The October issue is undergoing final public release review by the 95th Air Base Wing, Civil Engineer Directorate, Environmental Management Division Public Affairs Office.

Changes to the mailing list include: 24 address changes, 20 deletions, and 3 additions. A total of 1,739 subscribers were on the mailing list as of 30 September 2005.

Restoration Advisory Board

A Restoration Advisory Board (RAB) meeting was held 25 August 2005 at California City Middle School in California City. The agenda included an update on Site 285 – the perchlorate site at the former Jet Propulsion Laboratory. Because the Public Co-chair was unable to attend, she was briefed separately by the ERP staff. Draft minutes for the meeting were completed. Preparations are underway for the November 2005 RAB meeting to be held in Boron.

A draft advertisement for the Main Base Air Base Wing public representative vacancy was submitted and approved. The ad will run in the *Desert Wings* in early October.

An ad for the Main Base Test Wing public representative vacancy ran twice in the *Desert Wings*. An applicant was chosen by 412th Test Wing Commander.

Future Focus

a. Finalize and execute the Air Show booth.

b. Finalize and execute the November RAB meeting.

c. Complete search for items containing information on perchlorate.

d. Complete updates to the public web page.

Environmental Library

Livelink for Libraries: A new uniform resource locator (URL) and security certificate were assigned. Migration to version 9.1.2 continues without interruption of the library functions needed for cataloging, performing searches, and production of reports. The testing phase is

scheduled to begin in October 2005. Cataloging of photographs began by creating bibliographic records, but digital content is not available yet.

Repositories: The final circulation count for the June edition (delivered to the repositories on 20 July 2005) of the *Report to Stakeholders* is 53. The July and August editions were delivered the second week of September 2005; there are no circulation numbers for these reports yet. Five new ERP documents were added to the repositories' collections, and 11 OU3 documents were removed with the approval of the Project Manager.

The Library staff started developing a cataloging schema for photographs, followed by the creation of folders and subfolders for storage in Livelink. The cataloging schema was tested with a small sample of photographs, and the results were accurate.

Future Focus

a. Continue indexing and cataloging photographs to parallel metadata collection.

b. Provide support for the Perchlorate FOIA effort.

2.9 Environmental Management Strategic Plan

Project Manager: David Porter
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The draft Environmental Management Strategic Plan is still in review. The plan covers the history, status and out-year strategy for implementing the various environmental requirements for restoration, as well as conservation and compliance. Elements of the plan are included in this document in the "Road to ROD" section of each OU.

3.0 OPERABLE UNITS

3.1 Main Base Flightline – OU1

OU Manager: Paul Schiff
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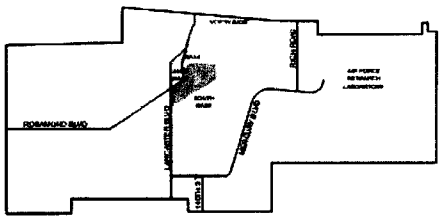


There are four main groundwater plumes in the vicinity of the flightline, emanating primarily from source areas at Sites 16, 18, 19, and 44.

3.1.1 Road to the Record of Decision

The soil and groundwater contamination within OU1 is currently being addressed administratively by a plume-based nomenclature with known source areas consisting of soil and free-product contamination areas, rather than site-based, since the site plumes are, for the most part, commingled. There are essentially four plumes in OU1, designated as the North OU1, Site 19, Site 44, and South OU1 plumes. These groundwater contamination plumes, with associated

soil contamination source areas, will be addressed using this nomenclature in the OU1 feasibility study (FS), proposed plan (PP), and ROD.

The anticipated long-term strategy for OU1 is to perform source removal followed by MNA for remediation of the soil and groundwater contamination. Several systems currently, or previously, in operation have shown this to be a viable strategy; for example, the Site 17 treatment system eliminated the primary contaminant source and the remainder of the plume has decreased in concentration and areal extent over time. Sites 11, 17, 21, and 44 are in MNA. Site 23 will convert to MNA over the next year since the soil vapor extraction/air sparging (SVE/AS) system has been successful at eliminating the contaminant sources that would have continued to contaminate the groundwater. The two large dual-extraction systems (DES), at Sites 16 and 18, have significantly reduced the contaminant levels in their source areas. The leading edges of these plumes have not changed significantly since the remedial systems were installed. The SVE systems have proven successful at remediating volatile organic soil contamination in OU1 soils; and it is expected that this technology will fully address any remaining risk posed by soil contamination.

The air Force (AF) has received comments from the Remedial Project Manager (RPMs) on the draft OU1 FS and is currently preparing the draft final OU1 FS, which will be submitted to the RPMs for review by 1 December 2005. The FS is evaluating and comparing all viable remedial alternatives to address risk to human health and the environment in the short-term and groundwater remediation to maximum contaminant levels (MCLs) in the long term. Remaining risk posed by the soil and groundwater contamination may be addressed via the use of SVE, and *in situ* bioremediation technologies (currently being tested at Site 19) to enhance the degradation of the contaminants, followed by MNA for long-term groundwater remediation. Land use controls (LUCs) will also be a part of the remediation approach. The final FS is scheduled to be issued in January 2006.

The final OU1 Proposed Plan is scheduled to be submitted for public review in November 2006. The final ROD is scheduled to be submitted in September 2007.

3.1.2 Active Sites

The following 12 sites were active in OU1 during this reporting period: Sites 11, 16, 17, 18, 19, 20, 21, 23, 24, 44, 58, and 66. Sites 11, 16, 17, 18, 19, 23, 44, 58, and 66 will continue on to the FS stage of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) process. Sites 20, 21, and 24 are locations where the potential, or actual, release was from a non-CERCLA (petroleum-only) source. The Kern County Environmental Health Services Department (KCEHSD), through an agreement with the California Regional Water Quality Control Board – Lahontan Region (RWQCB), is overseeing the restoration, where required, of these sites. The Air Force has removed these petroleum-only sites from the CERCLA process.

3.1.3 No Further Action/No Further Investigation Sites

The following 34 sites and AOCs were in no further action/no further investigation (NFA/NFI) status during this reporting period: Sites 8, 10, 33, 41, 42, 43, 45, 46, 47, 48, 50, 52, 53, 54, 55,

56, 57, 59, 60, 62, 64, 65, 67, 68, 342, 343, 345, 346, and 366 and AOCs 344, 365, 367, 377, and 397. These NFA and NFI sites will not be addressed in the FS because of the following:

a. Each of these sites has been through the Remedial Investigation (RI) process (including baseline ERA and HHRA).

b. Risk at each site was either below acceptable limits or mitigated by remedial activities.

c. The NFI/NFA was approved by the RPMs.

3.1.4 General Activity

Earth Tech submitted the draft OU1 Feasibility Study Report to the Environmental Restoration Branch, United States Army Corps of Engineers (USACE), U.S. EPA Region 9, Cal/EPA-DTSC, and RWQCB on 16 May 2005. Comments were received from the RPMs in August 2005. The AF, Earth Tech, and the RPMs met several times during this period to discuss and resolve the RPM comments. Earth Tech is currently preparing the draft final OU1 FS to be submitted to the RPMs for review by 1 December 2005.

3.1.5 Site Activity

Site 11 (Building 1724 [Jet Propulsion Fuel] JP-4 Fuel Spill). Earth Tech submitted the final *Site 11 Monitored Natural Attenuation Report* to 95 ABW/CEVR, Air Force Center of Environmental Excellence (AFCEE), U.S. EPA Region 9, Cal/EPA-DTSC, and RWQCB on 13 September 2005. Earth Tech responded to comments from 95 ABW/CEVR, AFCEE, U.S. EPA Region 9, Cal/EPA-DTSC, and RWQCB on the draft Multisite Treatability Study Report in September 2005. Earth Tech plans to submit the final report in October 2005. Earth Tech plans to drill one additional monitoring well at Site 11 in November 2005.

Site 16 (Building 1820 JP-4 Fuel Spill). Earth Tech continued to operate the Site 16 DES with 21 dual-extraction wells (DEWs) and 8 SVE wells online. Earth Tech sampled eight SVE wells, DEW 16-21, and the treatment compound from 15 through 16 August 2005. Earth Tech sampled 8 SVE wells, 21 DEWs, and the vapor and groundwater treatment systems from 14 through 26 September 2005. Earth Tech sampled 27 monitoring wells as part of the annual groundwater sampling from 21 through 18 September 2005. Earth Tech submitted the final *Site 16 Annual Monitoring Report* for the period November 2003 through September 2004 to 95 ABW/CEVR, USACE, U.S. EPA, Cal/EPA-DTSC, and RWQCB on 29 July 2005.

JT3/CH2M HILL continued recording equipment parameters on the mobile free-product recovery unit (MFRU) and oil/water separator and performed related tasks.

Site 17 (Building 1425 and 1600 Removed Underground Storage Tanks [USTs]). Earth Tech submitted a preview copy of the final *Site 17 Monitored Natural Attenuation Report.* The final document will be submitted in October 2005. Earth Tech responded to comments on the draft Multisite Treatability Study Report from 95 ABW/CEVR, AFCEE, U.S. EPA Region 9, Cal/EPA-DTSC, and RWQCB in September 2005. Earth Tech plans to submit the final report in October 2005.

Site 18 (Building 1864, 1870, 1874, and 1881 Hangar Area Removed UST). Earth Tech continued to operate the DES during this reporting period. Groundwater was extracted from up to 11 DEWs, and vapors were extracted from up to 21 vapor extraction wells and 10 DEWs. Earth Tech collected vapor and groundwater samples from the treatment systems on 20 July 2005. Earth Tech collected samples from the vapor treatment system on 14 September and from the water treatment system on 20 September 2005. The vapor extraction system was shut down the last week of September 2005 due to problems with the zeolite unit and the oxidizer igniter. Earth Tech plans to keep the vapor treatment system shutdown until the system can be replaced or redesigned to alleviate the problems.

Site 19 (Building 1928 and Rocket Plane Preparation Area). Testing and data collection of the *in situ* palladium-catalyzed groundwater treatment reactor vessels and control system continued. Laboratory-scale work related to this project is currently being conducted under the sponsorship of the U.S. EPA through the Western Region Hazardous Substances Research Center. The final report on the Chemiresistor® sensor field test was prepared and submitted to Environmental Restoration Branch by Sandia National Laboratory.

Earth Tech collected baseline groundwater samples from the bioremediation treatability study well field on 19 July 2005. Earth Tech completed the first whey powder injection bioremediation treatability study from 8 through 12 August 2005. On 25 August 2005, Earth Tech sampled the Barcad pumps at three depths within the new deep monitoring well to assess vertical extent of trichloroethene (TCE) contamination. Earth Tech completed the first groundwater sampling round following the injection, the week of 5 September 2005.

Site 20 (Building 1862 Removed UST). Earth Tech responded to comments on the draft Multisite Treatability Study Report from 95 ABW/CEVR, AFCEE, U.S. EPA Region 9, Cal/EPA-DTSC, and RWQCB in September 2005. Earth Tech plans to submit the final report in October 2005.

Site 21 (Jet Fuel Pipeline Leaks). Earth Tech responded to comments from 95 ABW/CEVR, AFCEE, and KCEHSD on the draft Site 21 Monitored Natural Attenuation Report in September 2005. Earth Tech is awaiting approval of the responses from ABW/CEVR. Earth Tech plans to submit the responses to KCEHSD for approval; then submit the final document in October 2005.

Site 23 (Building 3800 Removed UST). Earth Tech responded to comments from 95 ABW/CEVR, USACE, U.S. EPA Region 9, Cal/EPA-DTSC and RWQCB on the Site 23 Treatability Study Report in August 2005. Earth Tech plans to submit the final document in October 2005.

Site 24 (Buildings 3804 and 3807 Removed UST). Earth Tech continued operation and maintenance (O&M) of the SVE system during this reporting period. Earth Tech collected vapor samples from the treatment system on 19 July and 18 August 2005. Earth Tech collected samples from 12 SVE wells and the treatment system on 21 September 2005. Earth Tech collected groundwater samples from 10 monitoring wells from 14 through 21 September 2005. Earth Tech submitted the *Site 24 System Operations Report* covering January through March 2005 to USACE and 95 ABW/CEVR on 20 July 2005. Earth Tech began preparation of the Site 24 Annual Monitoring Report covering the period of October 2004 to September 2005.

Site 44 (Building 1210 Release Site). Earth Tech plans to drill four additional monitoring wells at Site 44 in November 2005. The final work plan for Site 44 MNA will be submitted in 2005, upon evaluation of the data from the additional monitoring wells.

Site 58 (Pad 19 Disposal Area). Earth Tech completed construction of the piping for the SVE system the week of 25 July 2005. Earth Tech sampled the new groundwater monitoring wells on 25 July 2005. Earth Tech hooked up the propane tanks and installation of the oxidizer and trailer in the treatment compound in August 2005. Earth Tech plans to complete electrical work at the site and startup the system in November 2005.

Site 66 (Building 1899 Removed UST). Earth Tech collected groundwater samples from Site 66 monitoring wells the week of 25 July 2005. Earth Tech continued preparation of the preliminary draft Site 66 Annual Monitoring Report for January 2004 through February 2005.

Active Sites with No Current Activity. Sites 49 and 51.

3.1.6 Field Schedule for OU1

The October through December 2005 field forecasts are as follows:

a. Continue well monitoring at whey powder injection area at Site 19 – October through December 2005.

b. Collect semiannual water levels in select OU1 monitoring wells – October 2005.

c. Collect groundwater samples from select OU1 monitoring wells – October through December 2005.

d. Complete startup of the Site 58 SVE system – November 2005.

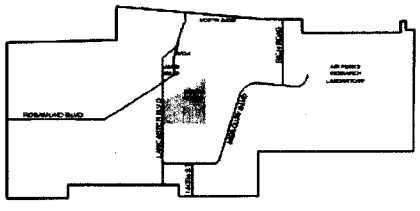
e. Drill additional monitoring wells at Sites 11 and 44 – November 2005.

f. Sample MNA wells at Sites 11, 17, 20, and 21 – November 2005.

OU Plans for Fiscal Year 2006

Operation and maintenance of the remediation systems at Sites 16, 18, 24, 58, and Facility 1418 will be performed throughout 2006. Sites 11, 17, 20, 21, 23, 44, 49, and 51 will continue with MNA or LTM. The Site 19 anaerobic dechlorination treatability study will continue into 2006. Annual RPO evaluations will be conducted on all sites with operating systems to evaluate performance and recommend any changes.

3.2 South Base – OU2



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There is one main groundwater contaminant plume within OU2, emanating from a source area at Site 5. The plume

has migrated downgradient to Site 14. Site 14 contributes a minor amount of contamination to the groundwater contaminant plume. Smaller zones of groundwater contamination exist at Sites 71, 76, and 86.

3.2.1 Road to the ROD

The OU2 RI Summary Report was prepared in 2001. A revised final *RI Summary Report* was submitted to the U.S. EPA, Cal/EPA-DTSC, and RWQCB on 29 October 2004. The final *OU2 Feasibility Study Report* was submitted to the RPMs on 26 August 2005. The FS includes Sites 5, 14, 29, 69, 76, 81, 86, and 102. The preliminary draft OU2 PP is planned for submittal to the Air Force for internal review during October 2005. Upon completion of the PP, the ROD will be prepared.

Treatment Strategy – Non-CERCLA Sites

The O&M of the bioventing systems (Sites 5, 14, 71, 74, 82, 88, and 94) is ongoing. Based on remediation-status soil samples collected in 2003, moisture addition has proved to have a beneficial effect in promoting biodegradation. Soil samples were collected at Sites 5, 14, 71, 74, 82, and 94 in FY 2005 to determine bioventing progress or to complete delineation of the extents of contamination. Remedial excavation of Site 82 is planned during 2005 and 2006. Operation of the other bioventing systems should be continued at least 1 additional year and remediation-status borings should be collected in FY 2006 to determine if progress on cleanup continues to be made. If no additional progress is made, FPM will investigate other technologies for remediating the contamination.

Treatment Strategy – CERCLA Sites

Sites 5/14 Plume. The O&M of remediation systems at Sites 5 and 14 is ongoing. The DES at Site 5 has been operating since 1997 to clean up the source area associated with the Sites 5/14 plume. The system addresses most, but not all, of the source area (soil contamination from leaking USTs), and does not address a thin layer of free-product located in the middle of the plume that goes under the runway. Within the footprint of operation, the DES has made considerable progress in removing the contamination source.

The groundwater extraction and treatment system (GETS) at Site 14 only serves to prevent downgradient migration of the plume; it was not designed to clean up Site 14 groundwater.

Several options for addressing the Site 5/14 plume are discussed in the FS. These are as follows:

a. Alternative 1: No Action – Shut off and remove both the Site 5 DES and Site 14 GETS.

b. Alternative 2: Containment, MNA, and institutional controls – Operate only the Site 14 GETS to prevent further downgradient migration of the plume and perform MNA.

c. Alternative 3: Containment, free-product removal, MNA, and institutional controls – Operate the Site 14 GETS to prevent further downgradient migration of the plume, expand the Site 5 DES to remove all free-product, and perform MNA until cleanup goals are reached.

d. Alternative 4: Containment, free-product removal, pilot testing and *in situ* remediation of the entire plume (depending upon pilot test results) – Remove free-product using either an expanded

DES or *in situ* treatment, and then perform *in situ* remediation (either by aerobic biological degradation or *in situ* chemical oxidation [ISCO]) to address the entire plume where MCLs are exceeded.

A pilot test began in April 2005 to evaluate *in situ* bioremediation of groundwater contaminants using the PHOSter System® (gas injection). The pilot test will evaluate if the chlorinated-only portions of the plume can be remediated using gaseous nutrients and methane, and if biodegradation in the fuel and solvent portions of the plume (including the thin product layers) can be achieved using gaseous nutrients. A pilot test for ISCO is planned for FY 2006.

A GT Solar Sipper is removing free-product from the Sites 5/14 contaminant plume. In a little over 1 month of operation, it has removed more than 25 gallons of product.

Sites 76 and 86. Several options for addressing the small, isolated TCE plumes at Sites 76 and 86 are discussed in the FS. These are as follows:

a. Alternative 1: No Action.

b. Alternative 2: MNA/Institutional Controls.

c. Alternative 3: Groundwater Extraction/Liquid-Phase Granular Activated Carbon (GAC) Adsorption.

d. Alternative 4: *In Situ* Bioremediation or ISCO.

Results from the Cl-Out® bioaugmentation pilot study at Site 86 and the PHOSter System® pilot test at Sites 5 and 14 will be applicable to these sites. Due to the relatively small size of the plumes, and the recalcitrant nature of TCE, Alternative 4 will probably be recommended in the PP.

Sites 29. Containment is the presumptive remedy for landfills. Site 29 currently lacks an engineered cover, but is underlain by lakebed clays that are thought to form a barrier to migration of contaminants into the drinking water aquifer. Different cover alternatives (including those less costly than a prescriptive Resource Conservation and Recovery Act cap) are considered in the FS; however, maintenance of existing institutional controls (a fence surrounds Site 29), enhancements to the existing stormwater control system, removal of surface debris that was deposited on the landfill in 1985, and long-term monitoring are believed to be adequate in controlling risk to human health and the environment. A reduced groundwater monitoring program is also being recommended.

Site 69. Due to the limited nature of the waste present at Site 69, clean closure is recommended. It is also recommended that the wastes be deposited at the Main Base Landfill or an offsite facility. Using Site 29 as a corrective action management unit (CAMU) to deposit wastes from Site 69 is also considered in the FS; however, the cost and convenience of this option must be balanced against the costs of installing an engineered cover on the Site 29 Landfill.

Sites 81 and 102. Because analysis of the skeet shards at Sites 81 and 102 resulted in detections of polycyclic aromatic hydrocarbons (PAHs), Remedial Actions (RAs) will need to be performed at the sites. The Environmental Restoration Branch has proposed to the RPMs that visible skeet

shards be removed manually, and the sites closed. The collected shards would then be taken off base for treatment and disposal. Attempting to remove all skeet debris by stripping off the top layer of soil over the large area covered by the skeet shards would negatively impact existing plant and animal communities.

3.2.2 Active Sites

The following 11 sites were active in OU2 during this reporting period: Sites 5, 14, 29, 71, 74, 76, 82, 86, 88, 94, and 223. Sites 5, 14, 29, 69, 76, 81, 86, and 102 will continue on to the PP and ROD stages of the CERCLA process. Sites 69, 81, and 102 were formerly NFI sites, but will be addressed in Post-Closeout projects because they were identified as posing ecological risk.

3.2.3 NFI/NFA Sites

The following 53 sites and AOCs were in NFI or NFA (for petroleum sites) status during this reporting period: Sites 15, 22, 69, 70, 72, 73, 75, 77, 78, 79, 80, 81, 83, 84, 85, 87, 89, 90, 91, 92, 93, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 221, and 341 and AOCs 218, 219, 220, 222, 290, 291, 364, 408, 417, 458, 459, and 460. Sites 78, 79, 96, and 417 will be included in the PP and ROD to document the interim remedial actions (IRAs) that were performed at the sites. The remaining NFI sites will not be addressed in the PP or ROD.

Planned NFIs/NFAs. No further investigation is planned for petroleum Site 223 in 2005.

3.2.4 General Activity

A final FS report for OU2 was submitted by Earth Tech on 26 August 2005 to the U.S. EPA, Cal/EPA-DTSC, and RWQCB.

3.2.5 Site Activity

Site 5 (South Base Waste Petroleum, Oil, and Lubricants [POL] Storage Area). FPM continued O&M and monitoring of the bioventing system. The preliminary draft annual report is in progress for soil boring data received on 30 June 2005. Earth Tech continued to operate the Site 5 DES. A pilot test is being conducted at Sites 5 and 14 to evaluate *in situ* bioremediation of groundwater contaminants using the PHOSter System®. Gas injection began at Site 5 in April 2005 and ended in July 2005. A reduction in free-product and groundwater contaminants was observed in the injection and monitoring wells; a complete analysis of the test results will be completed late 2005. The system has been moved to Site 14 for further testing.

Site 14 (South Base Fire Fighting Training Facility). FPM continued O&M and monitoring of the bioventing system. The preliminary draft annual report is in progress for soil boring data received on 30 June 2005. Earth Tech continued to operate the Site 14 GETS. A pilot test is being conducted at Sites 5 and 14 to evaluate *in situ* bioremediation of groundwater contaminants using the PHOSter System® (gas injection). Gas injection at Site 14 began in July 2005, and is scheduled to end in October 2005.

Site 71 (Old South Base Facilities and Fuel Depot). FPM continued operations, maintenance, and monitoring of the bioventing system. The preliminary draft annual report is in progress for soil boring data received on 30 June 2005.

Site 74 (Old South Base UST 8 to 12). FPM continued operations, maintenance, and monitoring of the bioventing system. The preliminary draft annual report is in progress for soil boring data received on 30 June 2005.

Site 82 (Building 300 Facilities). FPM continued operations, maintenance, and monitoring of the bioventing system. The preliminary draft annual report is in progress for soil boring data received on 30 June 2005.

Site 86 (Building 300 Engine Test Cell). FPM submitted the letter work plan for the CL-Out® pilot study to Environmental Restoration Branch, who forwarded it to the RPMs, in May. Comments were received from DTSC and U.S. EPA in June. FPM is preparing a response to RPM comments.

Site 88 (Old South Base UST 28 to 43 and 92). FPM continued operations, maintenance, and monitoring of the bioventing system. The preliminary draft annual report is in progress for soil boring data received on 30 June 2005.

Site 94 (Buildings 175, 181, 182, and 204 Facilities). FPM continued operations, maintenance, and monitoring of the bioventing system. The preliminary draft annual report is in progress for soil boring data received on 30 June 2005.

Sites with No Current Activity. Sites 29, 76, and 223.

3.2.6 Field Schedule for OU2

The October through December 2005 field forecasts are as follows:

a. Operations and maintenance of Site 5 DES and Site 14 GETS will continue throughout the period.

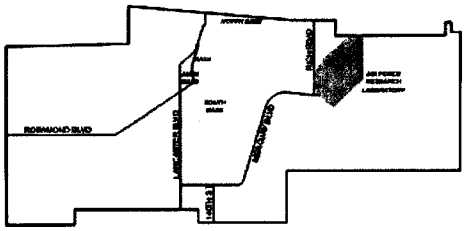
b. Operations, maintenance, and monitoring of the bioventing systems will continue throughout the period.

c. Sites 5/14 pilot test will continue through October.

OU Plans for Fiscal Year 2006

Monitoring and O&M will be continued at the active sites within OU2 during 2006. Earth Tech is under contract through AFCEE to prepare a PP and ROD.

3.3 Air Force Research Laboratory – OU4



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There are eight groundwater plumes in OU4, with source areas at Sites 37, 120, 133, 162, 177, 318, 333, and 461. There are three interim remedial action/treatability study (IRA/TS) systems operating in OU4.

3.3.1 Road to the ROD

The Federal Facilities Agreement (FFA) schedule for primary deliverables was renegotiated in January 2005. A request for further revisions to the FFA schedules for OUs 4 and 9 will be submitted to the RPMs in early October 2005.

On 25 August 2005, the draft Proposed Plan for the South AFRL (Sites 37, 133, 120, and 321) was transmitted by AFMC to Air Staff for review. As of 30 September 2005, Air Staff had not begun their review.

The final *OU4 RI Summary Report* was submitted in March 2005. This document includes Sites 7, 13, 26, 36, 37, 120, 133, 150, 153, 162, 166, 167, 170/171, 172, 177, 312, 318, 329, 333, 396, and 461.

The draft Feasibility Study Report, Soil and Debris Sites at Air Force Research Laboratory, Operable Units 4 and 9, was submitted to RPMs on 22 July 2005. Comments have been received from Cal/EPA-DTSC and the U.S. EPA; the U.S. EPA requested a discussion on 13 October 2005 of their review comments. This document includes Sites 7, 13, 36, 167, 312, and 318 in OU4, and Sites 6, 113, and 115 in OU9 (see OU9). Of the OU4 sites to be addressed, the following strategy is planned:

a. Sites 7, 13, and 167 – Recommend that the IRA be accepted as the final remedial alternative. Evaluate alternatives for institutional controls against nine CERCLA criteria.

b. Site 36 – Evaluate alternatives to address perchlorate contamination in soils.

c. Site 312 – Evaluate alternatives to address polychlorinated biphenyls (PCB) contamination on concrete pad and surrounding surface soils.

d. Site 318 – Evaluate alternatives to address PAH contamination in soil.

In the revised FFA schedule, the AFRL Soil and Debris Sites PP is scheduled for submittal as a draft to RPMs in June 2006 and the ROD in May 2007.

In addition, for the remaining groundwater plumes in OUs 4 and 9, the Air Force proposes to prepare two more Focused Feasibility Studies to Support Technical Impracticability Evaluation/ Containment Zone (TI/CZ) Application. The first document will include Sites 162/461 as one TI/CZ (AFRL Arroyos); and the second document will include Sites 27, 125, 127, and 333 as the Mars Boulevard TI/CZ and Sites 115, 116, 177/325, 178, and 318 as the Northeast AFRL TI/CZ.

3.3.2 Active Sites

The following 13 sites were active during this reporting period: Sites 7, 13, 36, 37, 120, 133, 162, 167, 177, 312, 318, 333, and 461.

3.3.3 NFI Sites

The following 76 sites and AOCs were in NFI status during this reporting period: Sites 12, 26, 32, 35, 40, 137, 143, 145, 146, 150, 153, 166, 172, 185, 186, 313, 329, 354, 355, 356, 357, 358, 359, 361, 396, and AOCs 119, 121, 134, 135, 136, 138, 139, 140, 141, 144, 147, 148, 149, 151, 152, 154, 155, 156, 157, 158, 159, 160, 161, 163, 164, 165, 168, 169, 170, 171, 173, 174, 175, 184, 314, 315, 316, 317, 319, 320, 326, 327, 335, 336, 372, 373, 374, 404, 405, 406, and 407.

3.3.4 General Activity

The draft Hydrogeological Investigation Informal Technical Information Report (ITIR) is in review by the RPMs. Comments have been received from the U.S. EPA. The draft Supplemental Hydrogeological Investigation Work Plan was submitted to the RPMs for review on 7 September 2005; approval to proceed with the proposed field investigation was received by 30 September 2005. The drilling of additional wells at Sites 325, in the arroyos, and in the Mars Boulevard area will begin on 10 October 2005.

The LTM program was briefed to the RPMs on 25 August 2005.

3.3.5 Site and AOC Activity

Site 13 (Closed Landfill). Field monitoring of the landfill gas wells and groundwater sampling (in coordination with Concurrent Technologies) was conducted during July 2005. Quarterly inspection of the landfill cover and collection of vapor samples from the gas monitoring wells was completed in September 2005.

Site 32 (Railroad Fuel Transfer Area, Building 8779). A report is in preparation for submittal to KCEHSD and RWQCB, Lahontan, that will include a recommendation for risk-based closure of Site 32. These decisions were also documented in a revised Memorandum of Record: *CERCLA Status of Sites and AOCs, Operable Unit (OU) 4, Edwards AFB, California*, included in Appendix A of the final *OU4 RI Summary Report*. Site 32 has been moved into NFI status.

Site 36 (Test Area 1-21 Storage Tank, Building 8582). No field activities were performed. The draft Site 36 Addendum to the OU4 HHRA, which incorporates results of additional soil sampling conducted at Site 36 in August 2004, will be revised in accordance with review comments received from the U.S. EPA on the draft Soil and Debris Sites FS report. The addendum was prepared in support of the Soil and Debris Sites FS document.

Site 37 (Building 8595 Tetrachloroethene [PCE] Plume). Earth Tech continued to monitor the GETS with Wells 37-EW02, 37-EW03, 37-EW06, 37-EW07, and 37-EW08 online.

The draft Treatability Study Work Plan (TSWP)Expansion of Site 37 GETS to the FBZ Area and Long Term Pumping Tests was reviewed by the Air Force and submitted for review by the

RPMs. A companion document to the TSWP, the Summary of Field Activities and Initial Results, Phase I/II Fractured Bedrock Zone Installation, Site 37, was also reviewed by the Air Force and is in preparation for submittal as a draft to the RPMs. In early August, a 2-foot-deep, 427-foot-long trench was dug from Well 37-EW04 to the fractured bedrock zone (FBZ) area near Well 37-EW10 in accordance with the preliminary draft TSWP for FBZ expansion. A 3-inch polyvinyl chloride (PVC) water pipe and a 1.5-inch airline was installed in the trench to extend the Site 37 GETS from Well 37-EW04 to the FBZ area. The pipe was stubbed from 2 feet belowground to 2 feet aboveground using galvanized piping.

The draft Annual Operations Report, 2004, for the Site 37 GETS was submitted for review by the RPMs during September 2005.

Another round of indoor air sampling for Building 8595 is scheduled for November 2005 to confirm that risks to human health by exposure to indoor air via the vapor intrusion pathway are in the acceptable range (less than 1 in 10,000). A brief work plan for the indoor air sampling is being prepared.

Site 40 (Southeast Trending Channel). A report is in preparation for submittal to KCEHSD and RWQCB, Lahontan, that will include a recommendation for risk-based closure of Site 40. These decisions were also documented in a revised Memorandum of Record: *CERCLA Status of Sites and AOCs, Operable Unit (OU) 4, Edwards AFB, California*, included in Appendix A of the final *OU4 RI Summary Report*. Site 40 has been moved into NFI status.

Site 133 (Phillips Lab Civil Engineering Yard). The groundwater extraction and treatment system was online during July through September 2005 with Well 133-EW01 as the only well operating. Earth Tech continued to monitor the performance of a tailored GAC polish for removal of perchlorate following two vessels of conventional GAC to remove VOCs. The final conventional GAC vessel following the two tailored GAC vessels was taken offline in late June 2005.

The draft Site 133 GETS Annual Operations Report for 2004 will be submitted for review by the RPMs in early October 2005.

A bromide tracer test, using Well 37-OW07 as the injection well, was initiated on 12 September 2005. The test will continue into early October 2005.

Site 162 (Test Area 1-40 Former Catch Tanks and Leuhman Ridge Arroyos). The draft Site 162 and Site 177/325 In Situ Bioremediation Treatability Study Work Plan (TSWP) was reviewed and approved by the RPMs. Earth Tech placed biotrap samplers into the pilot study area wells in late September 2005, and plans to conduct baseline sampling in mid-October 2005.

Earth Tech continued to work on development of a groundwater flow and contaminant transport model for the Arroyos area (Sites 162 and 461). To aid in refinement of this model, additional wells are planned as described in the final *Supplemental Hydrogeologic Investigation Work Plan, Operable Units 4 and 9*, which will be submitted to the RPMs during the first week of October 2005. It is anticipated that fieldwork will begin on 10 October 2005.

Site 172 (Building 8595 Waste Sump [Outdoor]). The SVE system was operational with Wells 172-EW01 through 172-EW03 and 172-EW05 through 172-EW07 online through July 2005.

On 20 April 2005, the RPMs signed a memorandum for record indicating their concurrence with an Air Force recommendation of NFI for this site. The letter was submitted for addition into Appendix A of the final *OU4 RI Summary Report*. Site 172 has been moved into NFI status. For purposes of this report, the Site 172 SVE system will continue to be discussed under the heading "Site 172."

Site 177 (Test Area 1-30 Former Catch Tanks). The draft Site 162 and Site 177/325 *In Situ* Bioremediation Treatability Study Work Plan (TSWP) was reviewed and approved by the RPMs. Earth Tech placed biotrap samplers into the pilot study area wells in late September 2005, and plans to conduct baseline sampling in mid-October 2005.

Site 461 (Test Stand 1-A). No field activities were performed during this period. Earth Tech continued to work on development of a groundwater flow and contaminant transport model for the Arroyos area (Sites 162 and 461).

Active Sites with No Current Activity. Sites 120, 318, and 333.

3.3.6 Field Schedule for OU4

The October through December 2005 field forecasts are as follows:

General. Conduct semiannual groundwater level monitoring – October 2005.

Site 13 (AFRL Landfill). Collect groundwater samples from landfill groundwater monitoring wells – October 2005.

Site 37 (Building 8595 Tetrachloroethene [PCE] Plume)

a. Continue extraction from Wells 37-EW02, 37-EW03, 37-EW06, 37-EW07 and 37-EW08.

b. Collect samples from influent, second midpoint, and effluent of the GETS for VOC analysis. Collect samples from effluent of the GETS for perchlorate analysis. Collect samples from Evaporation Pond No. 4 and discharge pipe at the AFRL Sewage Treatment Plant for perchlorate; 1,4-dioxane; and NDMA – once each quarter (or more often).

c. Start long-term pumping test of Well 37-EW09, including monitoring pumping rates and water levels at FBZ area – November 2005.

d. Collect groundwater samples from select monitoring wells as outlined in the *Well Sampling Strategy for Long-Term Monitoring of Groundwater Contaminant Plumes* – October 2005.

Site 133 (Groundwater Plume)

a. Continue extraction from Well 133-EW01. Continue the pilot test of tailored GAC for treatment of perchlorate – October through December 2005.

b. Collect samples from the influent, first midpoint, second midpoint, and effluent of the Site 133 GETS for VOC analysis. Collect samples from influent and effluent for perchlorate; NDMA; and 1,4-dioxane analysis.

c. Conduct bromide tracer test at Site 133, including monitoring for bromide in the surrounding wells following injection – September through October 2005.

d. Collect groundwater samples from select monitoring wells as outlined in the *Well Sampling Strategy for Long-Term Monitoring of Groundwater Contaminant Plumes* – October 2005.

Site 162 (Groundwater Plume)

a. Collect groundwater samples from select monitoring wells as outlined in the *Well Sampling Strategy for Long-Term Monitoring of Groundwater Contaminant Plumes* – October 2005.

b. Conduct baseline sampling for *in situ* bioremediation pilot study in mid-October, and plan for injection of emulsified edible oil substrate (EOS) in November 2005 with monitoring for the next 12 months.

c. Install up to four wells west of Rich Road to confirm alluvial contact and assess groundwater flow direction near the lakebed – November 2005.

Site 172 (Soil Vapor Extraction System)

a. Operate SVE system with six wells online – through December 2005.

b. Collect vapor sample from combined influent of SVE – once each month.

c. Following the indoor air sampling at Building 8595, start systematic shutdown of the Site 172 SVE to monitor for rebound response – October 2005.

Site 177 (Groundwater Plume)

a. Collect groundwater samples from select monitoring wells as outlined in the *Well Sampling Strategy for Long-Term Monitoring of Groundwater Contaminant Plumes* – October 2005.

b. Conduct baseline sampling for *in situ* bioremediation pilot study in mid-October, and plan for the injection of hydrogen release compound (HRC) in November 2005 with monitoring for the next 12 months.

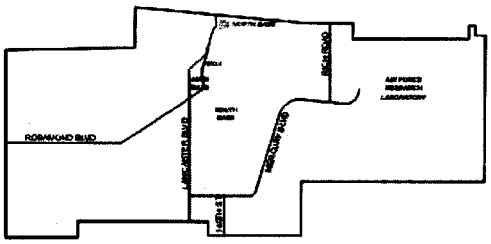
Site 318 (Test Area 1-120 Catch Basin and Evaporation Pond). Collect groundwater samples from select monitoring wells as outlined in the *Well Sampling Strategy for Long-Term Monitoring of Groundwater Contaminant Plumes* – October 2005.

Site 333 (Test Area 1-46). No activities are planned.

Site 461 (Test Stand 1-A).

a. Collect groundwater samples from select monitoring wells as outlined in the *Well Sampling Strategy for Long-Term Monitoring of Groundwater Contaminant Plumes* – October 2005.

North Base – OU5/10



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There are three main groundwater plumes within OU5/10, emanating from source areas within Sites 240/241, 282, and 285. Smaller groundwater plumes were identified at Sites 231, 239, and 422. Various wells at OU5/10, including Site 1 wells and the North Muroc Sentinel Wells, are used for conducting semiannual groundwater monitoring.

3.4.1 Road to the ROD

In May 2005, all sites from OU5 and OU10 were combined into a single operable unit, OU5/10. It was determined that since both OUs are in the same geographical area, and only have a limited number of sites that will need to proceed to the RI stage, that a cost and time savings would be incurred as a result of the deletion of OU10 as an individual and separate entity that required a separate set of CERCLA documents (RI, FS, PP, and ROD). A memorandum for record was signed by the RPMs during this reporting period concurring with the consolidation of the two OUs. The impact of this decision to the FFA schedule will be discussed at an RPM technical meeting scheduled during the next reporting period. Currently, the draft RI, FS, and PP reports are scheduled for submission to the RPMs in February and October 2007, and June 2008, respectively.

Treatment Strategy – CERCLA Sites

The U.S. EPA's accelerated cleanup model, including the use of presumptive remedies, will be used wherever possible on CERCLA sites within OU5/10. Remedial process optimization will be conducted, as appropriate, for sites with active treatment systems to reduce the amount of monitoring required and to maximize the efficiency of site plume treatment. Additionally, O&M of the systems could likely be assigned to an appropriate contractor after system optimization has been completed and only routine O&M is being performed. The current proposed strategies for the open sites and contaminant plumes are as follows:

Site 1. Earth Tech completed follow-on RI work at Site 1 in February 2005. In 1993, a DD was written that recommended capping, fencing, and monitoring of specified sub-Site 1 waste cells. As a result, the site has been included in the groundwater monitoring program for OU5/10, but characterization of the site, which was done in the 1980s and early 1990s, was inadequate. Based upon the analytical results of the follow-on RI and the human and ecological risk assessments, post-ROD remedial action may entail MNA or LTM and/or soil excavation and LUCs.

Site 231. Post-ROD remedial action may entail shallow soil excavation for lead in the soil and MNA or LTM for benzene and 1,2-dichloroethane in the groundwater.

Site 239 (Groundwater Only). Post-ROD remedial action may entail MNA or LTM for PCE in the groundwater. Note: Site 239 groundwater contamination extends beneath Site 238.

Site 240. Post-ROD remedial action may entail MNA or LTM for carbon tetrachloride (CCl_4) in the groundwater.

Site 242 (Soil Only). Post-ROD remedial action may entail shallow soil excavation for PCB-impacted soil, and/or institutional controls.

Site 275. In 2004, inert munitions were encountered during removal of surface debris. A fence will be installed around the site to limit unauthorized access. Transferring the site from the ERP to the 412th Test Wing Range Program is currently proposed to address the potential for additional munitions as well as buried debris and metal-impacted soil.

Site 282 (Groundwater Only). Post-ROD remedial action may entail continuation of *in situ* remediation technologies, dependent upon the TS outcomes and FS determinations.

Site 285 (Building E-42 Waste Sump). If a federal or state MCL is established for perchlorate, post-ROD remedial action may entail ion exchange pump and treat or enhanced *in situ* bioremediation.

Site 422 (Groundwater Only) – Post-ROD remedial action may entail MNA or LTM for TCE in the groundwater. If a federal or state MCL is established for perchlorate, post-ROD remedial action may also entail MNA or LTM for perchlorate in the groundwater.

No treatment is anticipated for Sites 274, 275, and 278.

Treatment Strategy – Non-CERCLA Sites

Site 238 (Soil Only) – Site 238 soil contamination will be addressed as a petroleum-only source through a decision document (DD) process. Remediation of petroleum hydrocarbons in soil may entail bioventing. Note: Groundwater at Site 238 will be addressed as part of Site 239.

Site 241 – Site 241 soil and groundwater contamination will be managed as a petroleum-only source through a DD process. Remediation of petroleum hydrocarbons in soil may entail bioventing.

3.4.2 Active Sites

The following 11 sites were in active status in OU5/10 during this reporting period: 1, 231, 239, 240, 241, 242, 275, 278, 282, 285, and 422.

3.4.3 NFI Sites

The following 76 sites and AOCs were in NFI status in OU5/10 during this reporting period: Sites 229, 233, 234, 235, 236, 238, 273, 274, 276, 277, 279, 348, 349, and 425, and AOCs 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 228, 230, 232, 237, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 281, 283, 284, 286, 287, 288, 289, 350, 369, 370, 401, 402, 403, 418, 420, 421, 423, 424, 462, 463, 464, 465, 466, 467, 468, and 470.

Planned NFIs in 2005.

a. Site 278 – North Base Miscellaneous Former Leaking Transformer (IRA completed in late 2004).

3.4.4 General Activity

Earth Tech performed ongoing investigative-derived waste management activities and surveyed new borehole and monitoring well locations. Earth Tech submitted the final *OU5/10 Annual Groundwater Monitoring and Sampling Report* on 11 July 2005. Earth Tech conducted the semiannual groundwater sampling event from 18 to 31 August 2005. The long-term groundwater monitoring strategy for OU5/10 was presented to the RPMs on 25 August 2005.

3.4.5 Site Activity

Site 1 (North Base Rogers Dry Lake Drum Disposal Site). Earth Tech submitted the preliminary draft Site 1 Site Summary Report on 12 August 2005.

Site 239 (Building 4410 Drainage System and Accumulation Point). Earth Tech submitted the draft Site 239 Site Summary Report Addendum on 28 July 2005.

Site 240 (Building 4505 Former Sump, Former Leachfield, and Coolant Radiator). Earth Tech submitted the preliminary draft Site 240 Site Summary Report Addendum on 7 July 2005.

Site 241 (Building 4505 Hangar & NW Wing USTs). Earth Tech continued O&M of the free-product auto-skimmers. An estimated 3,175 pounds of diesel fuel has been removed from the site. Earth Tech submitted the preliminary draft Site 241 Site Summary Report Addendum on 9 August 2005.

Site 278 (North Base Miscellaneous Former Leaking Transformer). Earth Tech submitted the final *Site 278 Concrete and Soil Removal Summary Report* on 8 July 2005.

Site 282 (Building E-18 Test Stand C/Fluorine Scrubber Basin/Emission Control System/ Retention Sump/Satellite Accumulation Point). In July 2005, a treatment system trailer was set up at Site 282 and baseline groundwater sampling of wells 189-MW01, 189-MW14, and 189-MW15 was performed in preparation for an enhanced anaerobic *in situ* bioremediation treatability study. On 23 August 2005, *in situ* bioremediation treatment system startup and testing was performed. Tracer testing associated with the bioremediation treatability study began on

25 August 2005. The nano-scale zero-valent iron pilot study was completed in August 2005 with the removal of the treatment system trailer and the dismantling of the recirculation piping.

Site 285 (Soil Only at AOCs 284 and 286, and Groundwater). Earth Tech continued O&M activities associated with the groundwater extraction and treatment/ion exchange (GET/IE) system. Approximately 21.7 million gallons of groundwater have been treated by the GET/IE system and an estimated 67 pounds of perchlorate have been removed from the site. Operation of the GET/IE soil flushing gallery continued. Field preparations for the implementation of the enhanced bioremediation study began.

Active Sites with No Current Activity. Sites 231, 242, 275, and 422.

3.4.6 Field Schedule for OU5/10

The October through December field forecasts are as follows:

a. Continue Site 285 GET/IE System and Site 241 free-product auto-skimmer O&M activities.

b. Begin the Site 285 enhanced bioremediation study.

c. Install two monitoring wells (189-MW16 and 189-MW17) at Site 282 and one monitoring well (239-MW03) at Site 239.

d. Continue the enhanced *in situ* bioremediation treatability study at Site 282.

e. Measure groundwater elevations in OU 5/10 monitoring wells.

OU Plans for 2005

Continue groundwater monitoring at OU5/10 sites and operation of the Site 285 GET/IE system during 2005. Conduct pilot scale treatability studies to evaluate their effectiveness at OU5/10 groundwater contamination sites. Continue collecting soil analytical data to further characterize and evaluate the OU5/10 sites that exhibit soil contamination

3.5 NASA – OU6

OU Manager: Tom Merendini
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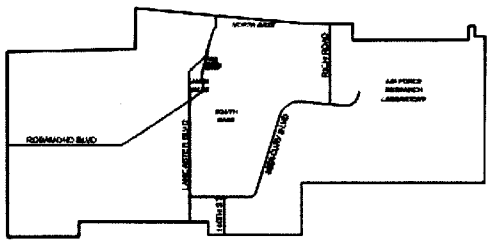
There is one commingled groundwater plume within OU6, emanating from source areas within AOCs 206, 207, and 211. There are no remediation systems currently operating in OU6. The commingled plume has been undergoing groundwater monitoring for the last 8 years.



3.5.1 Road to the ROD

The final FS has been submitted to the regulatory agencies. The public review period for the OU6 PP occurred 1 April to 1 June 2005. Comments to the draft ROD have been received from

Air Force Headquarters (AFHQ). The present consideration is to include NASA as a co-signatory to the ROD. This effort is presently working through the Edwards AFB chain of command for approval.

The overall strategy is to remediate groundwater contamination hot spots at AOCs 206, 207, and 211 where technically feasible. Depending upon results of remediation activities, a TI waiver and CZ designation may be requested for the dissolved phase mixed plume at the first 5-year review.

Treatment Strategy – Non-CERCLA Sites

All remediation actions on petroleum-only sites have been completed. The only step remaining is official closure of the sites by the KCEHSD.

Treatment Strategy – CERCLA Sites

Two new monitoring and/or injection wells will be installed as needed. Permanganate injections at AOCs 207 and 211 will be performed to reduce hot spot contaminant concentrations. Depending upon results, technical infeasibility and LTM may be the most likely long-term approaches.

3.5.2 Active Sites

The following three AOCs were active in OU6 during this reporting period: AOCs 206 (NASA Site N2), 207 (NASA Site N3), and 211 (NASA Site N7).

3.5.3 NFI Sites

The following 17 sites and AOCs were in NFI status during this reporting period: Site 351 and AOCs 205, 208, 209, 210, 212, 213, 214, 215, 216, 217, 307, 308, 309, 310, 311, and 363. These sites will not be addressed in the FS due to the following:

a. No significant contamination was found during the site investigation (SI) phase.
b. The HHRA found low levels of risk.
c. No known releases have occurred.
d. Metal concentrations are believed to reflect local background levels.
e. Future residential use is not anticipated.

No NFIs are planned for 2005.

3.5.4 General Activity

The FS, HHRA, ERA, and Proposed Plan for OU6 have been completed for all CERCLA sites. The long-term groundwater monitoring strategy was presented to the RPMs on 25 August 2005.

3.5.5 Site and AOC Activity

AOC 206 (Building 4801 Former APU Drainage Area). The OU6 ROD was submitted for AFHQ review during this period. Ten vapor wells were abandoned beginning 29 August 2005.

AOC 207 (Building 4889 Gas Station). The OU6 ROD was submitted for AFHQ review during this period. Phase II of the permanganate TS was conducted from 20 to 28 June 2005 and from 11 to 14 July 2005 at AOCs 207 and 211. One new injection well was installed at AOC 207.

AOC 211 (Building 4827 Drum Storage Area). The OU6 ROD was submitted for AFHQ review during this period. Phase II of the permanganate TS was conducted from 20 to 28 June 2005 and from 11 to 14 July 2005 at AOCs 207 and 211. One new injection well was installed at AOC 211.

Active Sites and AOCs with No Current Activity. None.

3.5.6 Field Schedule for OU6

No field work is scheduled for October through December.

OU Plans for 2005

Comments to the draft ROD have been received from AFHQ. The present consideration is to include NASA as a co-signatory to the ROD. This effort is presently working through the Edwards AFB chain of command for approval. Annual groundwater monitoring and Phase II of the permanganate TS will be conducted. Several new groundwater monitoring and injection wells will be established as needed to meet the OU6 long-term goals.

3.6 Basewide Miscellaneous – OU7

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Operable Unit 7 includes sites throughout the base that are not included in any of the other nine OUs; therefore, a graphic representation of OU7 is not included.

There is one poorly defined groundwater plume in OU7. It is beneath Site 3, the Main Base Inactive Landfill. There are currently no remediation systems operating in OU7.

3.6.1 Road to ROD

Sites 3, 267, 269, 272, 280, 293, 294, and 339 may continue on to the PP and ROD phases of the CERCLA process, depending on the results of the OU7 risk management meeting.

The final *OU7 HHRA* was submitted on 2 July 2004. Sites 3, 267, 269, 272, 280, 293, 294, and 339 have risks exceeding benchmarks risk levels.

The final OU7 RI Summary Report will be submitted in 2006, once data gaps are filled. The OU7 risk management meeting, FS, PP and ROD have been delayed as a result of data gaps identified by the *OU7 PERA*. A revised schedule for the OU7 FS, PP, and ROD will be submitted in October 2005.

Treatment Strategy – Non-CERCLA Sites

A remedial excavation to eliminate petroleum-impacted soil at Sites 266 and 292 is planned for FY 2007.

Treatment Strategy – CERCLA Sites

Groundwater and vapor monitoring at Site 3 will resume in 2005 and continue until Response Complete (RC). Groundwater treatment may also be required at Site 3, depending on the risk to human health and the environment. The OU7 FS will evaluate remedial alternatives including groundwater treatment, consolidation of landfill cells to minimize the landfill footprint, and landfill cap construction. Long-term monitoring, including groundwater and vapor monitoring and LUCs, may be required for Site 3 until RC.

The determination of whether the old range Sites 267, 269, and 294 will be carried forward in the CERCLA process is dependent upon the outcome of the OU7 risk management meeting. If the sites do go forward, an FS will be conducted to address human and ecological risks.

Options for removal and treatment, or disposal and onsite treatment, are being evaluated in the OU7 FS for Site 280. Currently, removal and incineration appears to be the most cost-effective option.

3.6.2 Active Sites

The following 11 sites were active during this reporting period: Sites 3, 266, 267, 269, 270, 272, 280, 292, 293, 339, and 340. Post-Closeout (PCO) sampling will be performed at Site 294 to fill data gaps identified by the OU7 PERA.

3.6.3 NFI/NFA Sites

The following 51 sites and AOCs are in NFI or NFA (for petroleum sites) status during this reporting period: Sites 4, 28, 34, 258, 259, 262, 263, 264, 265, 271, 294, 295, 296, 302, 353, 419, and AOCs 260, 261, 268, 368, 371, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 398, 399, 400, 450, 451, 452, 453, 454, 455, 456, and 469. Sites 266 and 292 are open petroleum sites under the Local Oversight Program. The Air Force will not carry these sites forward in the CERCLA process and they will not be included in the OU7 PP or ROD due to the following:

a. No significant contamination was found during site investigation (SI).

b. They fall under the petroleum exclusion and are not a part of the CERCLA process.

Planned NFIs/NFAs in 2005. No further investigation may be recommended to the RPMs for Site 270, depending on the analytical results of groundwater samples collected in June 2005.

3.6.4 General Activity

There was no general activity.

3.6.5 Site Activity

Site 3 (Main Base Inactive Landfill). Groundwater data received on 30 June 2005 were processed and preparation of the preliminary draft Monitoring Report was completed and submitted on 30 September 2005.

Site 266 (Range Control Buildings 9500 to 9512 PIRA, Downfall). In July 2005, Earth Tech submitted comment responses to the preliminary draft work plan for groundwater monitoring. The draft work plan for groundwater monitoring was submitted in July 2005. A remedial excavation to eliminate petroleum-impacted soils is planned for FY 2007.

Site 269 (East Camp Moving Target Machine Gun Range). The final *Site Summary Report* has been submitted. This site is being summarized in the preliminary draft Remedial Investigation Site Summary Report (RISSR).

Site 270 ([Explosive Ordnance Disposal] EOD Residue Pits and Thermal Treatment Unit). The final *Site 39 and Site 270 Site Summary Report* was completed, but will have a groundwater sampling addendum added. Additional groundwater samples were collected for metals analyses in June 2005 as required by DTSC.

Site 272 (Former Mojave Corporation). The Air Force has received approval from Cal/EPA-DTSC and RWQCB to discontinue groundwater monitoring at this site. This site is being summarized in the preliminary draft Remedial Investigation Site Summary Report (SSR). A work plan for soil sampling to fill data gaps identified by the OU7 PERA will be submitted during the next quarter.

Site 280 (Northwest Area Drum Storage Site). The draft Groundwater Monitoring Report was submitted to the RPMs 7 September 2005. Based on the lack of contamination above MCLs, no further groundwater monitoring is recommended.

Site 292 (Southern Lancaster Boulevard Area Tar Pit). Low-mobility petroleum products impact the soil. A remedial excavation to eliminate petroleum-impacted soils is planned for FY 2007.

Site 293 (Southern Lancaster Boulevard Area Dump and Former Gas Station). This site is being summarized in the Preliminary Draft Remedial Investigation SSR. A work plan for soil sampling to fill data gaps identified by the OU7 PERA will be submitted during the next quarter.

Site 294 (Southern Lancaster Boulevard Area Former Skeet Shooting Range). Site 294 is in NFI status; however, additional shard sampling will be performed to fill data gaps identified by the OU7 PERA. A work plan for soil sampling to fill the data gaps will be submitted during the next quarter. This site is being summarized in the preliminary draft Remedial Investigation SSR.

Site 339 (Piute Pond Landfill). The Air Force has received approval from Cal/EPA-DTSC to discontinue groundwater monitoring at this site. This site is being summarized in the preliminary draft Remedial Investigation SSR. A work plan for soil sampling to fill data gaps identified by the OU7 PERA will be submitted during the next quarter.

Site 340 (Southwest Area Sand Pit). Reponses to U.S. EPA evaluation of the final *Site Summary Report* were compiled. A meeting will be scheduled by CEVR with EPA to discuss EPA evaluations.

Active Sites with No Current Activity. None.

3.7 Chemical Warfare Materiel Sites (OU7 CWM)

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No groundwater plumes have been identified in the CWM portion of OU7 (Sites 425 through 449 and AOCs 457 and 471).

3.7.1 Road to ROD

Three burial areas at Site 442, Areas 1, 2, and 3, are being carried forward in the CERCLA process.

Closure of the two mineshafts at Site 432 will be requested from the regulatory agencies.

The CWM RI and FS reports will be prepared in 2006. Although no contamination was detected at Site 426, it is being retained in the RI Report because an IRA was performed at the site. The FS will include Site 442.

A revised schedule for completion of the CWM PP and ROD will be submitted in October 2005. The PP will include Sites 442 Areas 1, 2, and 3. The PP and ROD will include those areas and Site 426, because an IRA was performed at the site.

Treatment Strategy

Remedial alternatives for the bomb burial areas will be addressed in an FS. The only hazard that exists at these areas is if they are excavated and CWM or unexploded ordnance is unearthed. The soils and groundwater at these areas are not significantly contaminated. The areas are considered "landfills" under CERCLA, and may require a cap. Geophysical and geotechnical analyses of the existing cover materials were conducted. The results will be used in modeling infiltration rates so that the adequacy of the existing cover materials for constructing a cap can be assessed.

3.7.2 Active Sites

The following four sites were active during this reporting period: Sites 430, 431, 432, and 442. (Note: Although Sites 430 and 431 are in NFI status, final *Site Investigation Summary Reports* were prepared.)

3.7.3 NFI Sites

The following 24 sites and AOCs were in NFI status during this reporting period: Sites 426, 427, 428, 429, 430, 431, 433, 434, 435, 436, 437, 438, 439, 440, 441, 443, 444, 445, 446, 447, 448, 449, and AOCs 457 and 471.

The interim remedial action performed at Site 426 will be documented in the OU7 CWM PP and ROD.

Planned NFIs/NFAs in 2005

Site 432 (East Aberdeen Bombing Mission [ABM] Target Area and Two Associated Mineshafts) will be proposed for NFI status in October 2005.

3.7.4 General Activity

There was no general activity.

3.7.5 Site Activity

Site 430 (Chemical Precision Bombing [PB] Target). Earth Tech submitted the final *Site Summary Report (Addendum), Site 430 – Chemical Precision Bombing Target and Site 431 – West Aberdeen Bombing Mission Target Area* to Environmental Restoration Branch and AFCEE on 5 August 2005.

Site 431 (West Aberdeen Bombing Mission Target Area). Earth Tech submitted the final *Site Summary Report (Addendum), Site 430 – Chemical Precision Bombing Target) and Site 431 – West Aberdeen Bombing Mission Target Area* to Environmental Restoration Branch and AFCEE on 5 August 2005.

Site 432 (East Aberdeen Bombing Mission Target Area). Earth Tech submitted the draft Site Summary Report, Site 432 – East Aberdeen Bombing Mission Target Area to the U.S. EPA, DTSC, and RWQCB on 11 August 2005. Based on the lack of contamination above regulatory guidelines, no further investigation and site closure are recommended.

Site 442 (Known Explosive Ordnance Division Burial Locations). Earth Tech is responding to comments on the draft *Site Summary Report, Site 442 (Areas 3 and 4 – Target PB-5)* that was submitted to Environmental Restoration Branch, AFCEE, and the RPMs (U.S. EPA, DTSC, and RWQCB) on 21 June 2005. Earth Tech is preparing an FS to address buried ordnance debris.

3.7.6 Field Schedule for OU7

For OU7 Non-CWM sites, groundwater sampling at Site 266 is scheduled in October 2005 and PERA soil sampling at Site 339 is scheduled in November 2005. All field activities are complete for OU7 CWM.

3.7.7 OU7 and OU7 CWM Plans for 2005

a. Prepare the OU7 RI Summary Report.

b. Complete remedial investigation of CWM sites. Begin preparation of the OU7 CWM RISSR.

c. Begin preparation of the OU7 CWM Feasibility Study for Site 442, Areas 1, 2, and 3.

Northwest Main Base – OU8

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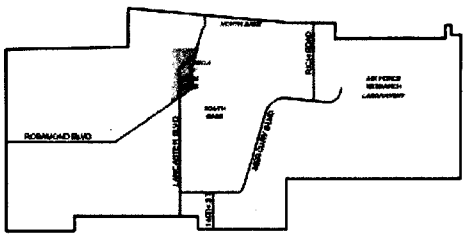

There are seven main groundwater plumes within OU8 emanating from source areas within Sites 25, 61, 63, 225/298, 297, 299, and 301.

3.8.1 Road to the ROD

Treatment Strategy – Non-CERCLA Sites

Sites 9, 31, 63, 224, 225, 297, 298, 347, and 352 and AOCs 303 and 306 were locations where the potential or actual release was from a petroleum-only source. One of these, Site 63, is currently active in the ERP. The KCEHSD and RWQCB are overseeing the investigation and restoration of this site. Preparation began in September 2005 on a Remedial Action Plan (RAP), which includes an analysis and evaluation of remedial alternatives for Site 63, for submission to KCEHSD. The RAP will propose appropriate Remedial Action Objectives (RAOs) for the site. Sites 225, 297, and 298 were administratively closed under the ERP Program in August and September 2005 and future work at these sites will be administered under other programs.

Treatment Strategy – CERCLA Sites

Sites 25, 61, 226, 227, 257, 299, 300, and 301 are source sites for non-petroleum-only soil and/or groundwater contamination at OU8. These sites will be retained in the CERCLA process.

A draft OU8 RI Summary Report (RISR) was submitted for review to the RPMs on 19 August 2005. Review comments are due 24 October 2005. The OU8 RI Report includes a brief history of each CERCLA site, the nature and extent of contamination, a summary of the baseline risk assessments (i.e., HHRA and ERA) conclusions, and recommendations. Additional soil and/or groundwater sampling will be performed at Sites 61, 299, and 301 during FY 2006 in order to address data gaps identified during preparation of the draft RISSR. This data will be incorporated into the final RISSR.

An FS will be performed for the OU8 CERCLA sites. Preparation of the FS report, presenting a detailed analysis of various remedial technologies appropriate for site conditions, began in August 2005 with preparation of a preliminary draft work plan. The draft FS is scheduled for submission to the RPMs in May 2006; however, submission of the report may be postponed due to the planned additional sampling. The FS will propose appropriate RAOs for the sites.

The OU8 Proposed Plan will present the proposed final disposition for all CERCLA sites in the OU. It will be based primarily on the FS, and will represent the best judgment of Edwards AFB in selecting from the remedial alternatives analyzed, in detail, in the FS.

The OU8 ROD will document the final disposition of all CERCLA sites in the OU. It will be based primarily on the FS and PP, and will represent the combined best judgment of all stakeholders in selecting one of the remedial alternatives analyzed in detail in the FS. If IRAs have accomplished their objectives, the OU8 ROD will document site closures for the majority of the hazardous waste release sites identified by the ERP, establish the cleanup levels for those sites that require cleanup, and establish the level of institutional control needed to protect human health and the environment on those sites in LTM.

3.8.2 Active Sites

The following nine sites were active in OU8 during this reporting period: Sites 25, 61, 63, 226, 227, 257, 299, 300, and 301.

3.8.3 NFI Sites

The following 12 sites and AOCs are in NFI or NFA (for petroleum sites) status during this reporting period: Sites 2, 9, 31, 224, 225, 297, 298, 347, and 352, and AOCs 303, 304, and 306. The following three sites were administratively closed during the reporting period: Sites 225, 297, and 298.

3.8.4 Site Activity

Site 25 (Building 4949 Exotic Fuel Storage Area). Earth Tech continued O&M of the Site 25 GETS; operational performance was monitored and adjusted as necessary. Approximately 23.8 million gallons of groundwater have been treated by the GETS and an estimated 142 pounds of TCE have been removed from the site. Environmental Restoration Branch provided review comments on the preliminary draft OU8 RI Summary Report, which includes Site 25. The draft report was prepared and submitted to the RPMs on 19 August 2005. The OU8 FS, which includes Site 25, began in August 2005.

Site 63 (JP-4 Pipeline Initial Mile of the Pipeline Leaks). The final *Site Summary Report* and *Site 63, JP-4 Pipeline, Initial Mile of Pipeline Leaks, and Site 297, Building 2110 Drains and UST (M040, M052, M079, M088), Remedial Investigation Field Sampling Plan Addendum* have been issued. Environmental Restoration Branch provided review comments on the preliminary draft Annual Monitoring Report. The Site 63 RAP project began in September 2005.

Site 225 (Building 3512 Former Gas Station, Removed UST). FPM submitted the preliminary draft letter work plan for the Electrical Resistivity Heating Pilot Study in May and has received comments. The project is pending approval for change of scope. Upon approval, work will continue with the submittal of draft letter work plan to KCEHSD. The site was administratively closed in September 2005.

Site 226 (Building 3755 Supply Yard and Building 3739 Concrete Pad). Environmental Restoration Branch provided review comments on the preliminary draft OU8 RI Summary Report,

which includes Site 226. The draft report was prepared and submitted to the RPMs on 19 August 2005. The OU8 FS, which includes Site 226, began in August 2005.

Site 257 (Building 4976 Photochemical Discharge Area). In May 2005, the DTSC requested that additional soil and groundwater samples be collected from Site 257 for human health risk evaluation. The field sampling plan for this work is in preparation and will be submitted to the RPMs in October 2005. Environmental Restoration Branch provided review comments on the preliminary draft OU8 RI Summary Report, which includes Site 257. The draft report was prepared and submitted to the RPMs on 19 August 2005, and review comments are due in October 2005. The OU8 FS, which includes Site 257, began in August 2005.

Site 297 (Building 2110 Drains and UST). Environmental Restoration Branch provided review comments on the preliminary draft Annual Monitoring Report for Sites 63 and 297. A final report will be submitted in October 2005. The site was administratively closed in August 2005.

Site 298 (Building 2340 UST). FPM submitted the preliminary draft letter work plan for the Electrical Resistivity Heating Pilot Study in May and has received comments. The project is pending approval for change of scope. Upon approval, work will continue with submittal of draft letter work plan to KCEHSD. The site was administratively closed in September 2005.

Site 299 (Building 2450 Waste Oil Disposal Sink and Removed UST). Environmental Restoration Branch provided review comments on the preliminary draft Annual Monitoring Report for Sites 299 and 301. The draft report will be submitted to the RPMs in November 2005. Environmental Restoration Branch provided review comments on the preliminary draft OU8 RISSR, which includes Site 299. The draft report was prepared and submitted to the RPMs on 19 August 2005. Review comments are due in October 2005. The OU8 FS, which includes Site 299, began in August 2005.

Site 300 (Building 3500 Common Yard and Paint Stains). In May 2005, the DTSC requested that an additional groundwater sample be collected for human health risk evaluation. The field sampling plan for this work is in preparation, and will be submitted to the RPMs in October 2005. Environmental Restoration Branch provided review comments on the preliminary draft OU8 RISSR, which includes Site 300. The draft report was prepared and submitted to the RPMs on 19 August 2005. The OU8 FS, which includes Site 300, began in August 2005.

Site 301 (Building 3500 Paint Shop Accumulation Point). Environmental Restoration Branch provided review comments on the preliminary draft OU8 RISSR, which includes Site 301. The draft report was submitted to the RPMs on 19 August 2005. Environmental Restoration Branch provided review comments on the preliminary draft Annual Monitoring Report for Sites 299 and 301. The draft report will be submitted to the RPMs in November 2005.

Active Sites with No Current Activity. Sites 61 and 227.

3.8.5 Field Schedule for OU8

The October through December field forecasts are as follows:

a. Operations, maintenance, and system sampling for the Site 25 GETS are scheduled to continue through the next reporting period.

b. Soil and/or groundwater samples will be collected from Sites 257 and 300 during the next reporting period.

c. Complete groundwater sampling at Sites 25, 61, 299 and 301.

OU Plans for Fiscal Year 2005

During 2005, the Site 25 GETS will continue to be operated and maintained, and groundwater monitoring will be performed at Sites 25, 61, 63, 299, and 301.

3.9 AFRL – OU9

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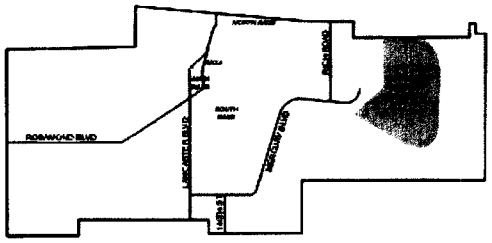

There are eight groundwater plumes in OU9, with source areas at Sites 27, 115, 116, 125, 127, 178, 321, and 325. There are no IRA/TS systems operating in OU9.

3.9.1 Road to the ROD

The FFA schedule for primary deliverables was renegotiated in January 2005. A request for further revisions to the FFA schedules for OUs 4 and 9 will be submitted to the RPMs in early October 2005. The final *OU9 HHRA* was submitted to the RPMs in December 2004. An addendum will be submitted as draft to the RPMs in October 2005. The final *OU9 Scoping Ecological Risk Assessment* (SERA) was submitted in August 2004; the final *Prescoping ERA* was submitted in October 2004 and the final *OU9 PERA (Revised)* was submitted in June 2005. A risk management meeting was held in Victorville, California, on 20 and 21 April 2005. A second risk management meeting is scheduled for 13 October 2005.

The OU9 RISSR was submitted as a draft to the RPMs in August 2005. This document includes the following sites: Sites 6, 27, 113, 115, 116, 125, 127, 178, 321, and 325. Site 39 will not be included because it remains active as an Open Burn Unit. The RPMs approved NFI for Sites 114, 180, and 338; these sites will be documented as closed in the SI phase.

Per the revised FFA schedule, the draft OU9 FS Report (which will include the TI evaluations/CZ applications for Northeast AFRL [OU4 Sites 177 and 318, and OU9 Sites 115, 116, 178, and 325] and Mars Boulevard [OU4 Site 333 and OU9 Sites 27, 125, and 127]), PP, and ROD are due for submittal to RPMs in July 2006, May 2007, and April 2008, respectively). The FS document will have an associated groundwater modeling report and management plan for the Northeast AFRL and Mars Boulevard areas. Sites 6, 113, and 115 will be included in the AFRL Soils and Debris Sites FS (see OU4).

3.9.2 Active Sites

The following 10 sites were active during this reporting period: Sites 6, 27, 113, 115, 116, 125, 127, 178, 321, and 325.

3.9.3 NFI Sites

The following 36 sites and AOCs were in NFI status during this reporting period: Sites 38, 39, 180, 305, 338, 360, 362, and 376, and AOCs 114, 117, 118, 122, 123, 124, 126, 128, 129, 130, 131, 132, 142, 176, 179, 181, 182, 183, 322, 323, 324, 328, 330, 331, 332, 334, 337, and 375.

3.9.4 General Activity

The draft Hydrogeological ITIR is in review by the RPMs. Comments have been received from the U.S. EPA. The draft Supplemental Hydrogeological Investigation Work Plan was submitted to the RPMs for review on 7 September 2005; approval to proceed with the proposed field investigation was received by 30 September 2005. The drilling of additional wells at Sites 325, in the arroyos, and in the Mars Boulevard area will begin on 10 October 2005.

The LTM program was briefed to the RPMs on 25 August 2005.

A summary of groundwater sampling results for wells installed since April 2004 is in preparation for submittal as a draft in October 2005. A summary of soil sampling results and an addendum to the *OU9 HHRA* is in preparation for submittal as a draft in October 2005.

3.9.5 Site and AOC Activities

Site 27 (Test Area 1-56 Deluge Discharge System). Geophysical surveys were conducted to clear utilities at seven different potential well locations.

Site 116 (Test Area 1-36 Test Pad A Rocket Exhaust Area and Oxidation Pond 1). No field activities were conducted during the reporting period.

Site 125 (Test Area 1-42 Oxidation Ponds and Burn Pit). Geophysical surveys were conducted to clear utilities at the location of proposed Well 125-MW14.

Site 127 (Test Area 1-52 Pad A Deluge Drainage System). Geophysical surveys were conducted to clear utilities at the location of proposed Well 127-MW10.

Site 325 (Test Area 1-90 Former Test Stands 1-91 and 1-92, Former Landfill, and Three Burn Pits). Geophysical surveys were conducted to clear utilities at location of proposed Wells 325-MW20 through 325-MW23.

Active Sites and AOCs with No Current Activity. Sites 6/113, 39, 115, 116, 178, and 321, and AOC 114.

3.9.6 Field Schedule for OU9

The October through December 2005 field forecasts are as follows:

a. Sites 27, 125, and 127 – Drill and install up to five monitoring wells to obtain hydrogeological information for the groundwater plumes along Mars Boulevard – beginning in November 2005.

b. Site 325

(1) Drill and install Well 325-MW20 downgradient of Well 32-MW18 – October 2005

(2) Drill and install up to four monitoring wells to delineate groundwater contours in the northeast portion of the AFRL – beginning in October 2005.

c. Collect groundwater samples at Site 177/325 – October 2005.